MITSUBISHI

WS0-GETH00200

Safety Controller Ethernet Interface Module User's Manual (Hardware)

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MODEL	WS-ET-U-HW-E
MODEL CODE	13JZ95
IB(NA)-0800535ENG-A(1404)SICK	

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Precautions regarding warranty and specifications

MELSEC-WS series products are jointly developed and manufactured by Mitsubishi and SICK AG, Industrial Safety Systems, in Germany. Note that there are some precautions regarding warranty and specifications of MELSEC-WS series products.

<Warranty>

- The gratis warranty term of the product shall be for one (1) year after the date of delivery or for eighteen (18) months after manufacturing, whichever is less.
- The onerous repair term after discontinuation of production shall be for four (4) years.
- Mitsubishi shall mainly replace the product that needs a repair.
- It may take some time to respond to the problem or repair the product depending on the condition and timing.

<Specifications>

- General specifications of the products differ.

	MELSEC-WS	MELSEC-Q	MELSEC-QS
Operating ambient temperature *Température ambiante de fonctionnement*	-25 to 55°C*1 *-25 à 55°C*1	0 to 55°C *0 à 55°C*	0 to 55°C *0 à 55°C*
Operating ambient humidity	10 to 95%RH	5 to 95%RH	5 to 95%RH
Storage ambient temperature	-25 to 70°C	-25 to 75°C	-40 to 75°C
Storage ambient humidity	10 to 95%RH	5 to 95%RH	5 to 95%RH

*1: When the WS0-GCC100202 is included in the system, operating ambient temperature will be 0 to 55°C.
**1: Avec un module WS0-GCC100202 inclus dans le système, la température ambiante de service est de 0 à 55°C.*

- EMC standards that are applicable to the products differ.

	MELSEC-WS	MELSEC-Q, MELSEC-QS
EMC standards	EN61000-6-2, EN55011	EN61131-2

1 About this document

1.1 Documentations for the MELSEC-WS system

These manuals apply for the MELSEC-WS Ethernet interface module and only in combination with the corresponding user's manual “Safety Controller Ethernet Interface Module User's Manual”.

The installation, configuration and commissioning of the MELSEC-WS safety control system are described in the "Safety Controller User's Manual" and "Safety Controller Setting and Monitoring Tool Operating Manual".

Title	Number
Safety Controller User's Manual	WS-CPU-U-E (13JZ32)
Safety Controller Ethernet Interface User's Manual	WS-ET-U-E (13JZ33)
Safety Controller CC-Link Interface User's Manual	WS-CC-U-E (13JZ45)
Safety Controller Setting and Monitoring Tool Operating Manual	SW1DNNWS0ADR-B-O-E (13JU67)

In addition mounting protective devices also requires specific technical skills which are not detailed in this documentation.

2 Correct use

ATTENTION

Do not use data from a MELSEC-WS Ethernet interface module for safety related application!
Ne pas utiliser les données du module d'interface Ethernet du MELSED-WS pour des applications liées à la sécurité !
These gateways only generate non-safety-related data which are not suitable for use in safety related applications.
Ces passerelles ne véhiculent que des données non-sécurisées impropres à un usage dans les applications liées à la sécurité.

The WS0-GETH is an Ethernet based gateway and a part of the MELSEC-WS system that communicates with primary control systems. It provides non-safe fieldbus data for control and diagnostic purposes.

The gateway does not have its own power supply and can only be operated with a MELSEC-WS system.

Up to two gateways can be used in a MELSEC-WS system. These must be installed directly to the right of the WS0-CPUx.

This gateway must be used only by qualified safety personnel and only on the machine where it has been installed and initialized by qualified safety personnel in accordance with the operating manuals.

ATTENTION

Observe the protective notes and measures in the MELSEC-WS User's manual!
Respecter les consignes de sécurité et mesures de protection décrites dans le Manuel de l'utilisateur MELSEC-WS.

Mitsubishi Electric Co. accepts no claims for liability if the equipment is used in any other way or if modifications are made to the device, even in the context of mounting and installation.

- When mounting, installing and using the MELSEC-WS system, observe the standards and directives applicable in your country.
- The national/international rules and regulations apply to the installation, use and periodic technical inspection of the MELSEC-WS system, in particular:
  – EMC Directive 2004/108/EC,
  – Provision and Use of Work Equipment Directive 89/655/EWG,
  – Work safety regulations/safety rules.
- These manuals and the related operating manuals must be made available to the user of the machine where a MELSEC-WS system is installed. The machine operator is to be instructed in the use of the device by qualified safety personnel and must be instructed to read the operating manuals.
- If Ethernet-gateway (GETH) is used, the CPU module is intended to be used with a Class 2 power source or Class 2 transformer in accordance with UL1310 or UL1585 (because the Ethernet gateway is powered from the CPU module).

2.1 Disposal

Disposal of unusable or irreparable devices should always occur in accordance with the applicable country-specific waste-disposal regulations (e.g. European Waste Code 16 02 14).

3 Conditions of use for the product

(1) Although MELCO has obtained the certification for Product's compliance to the international safety standards IEC 61508, EN 954-1/ISO 13849-1 from TUV Rheinland, this fact does not guarantee that Product will be free from any malfunction or failure. The user of this Product shall comply with any and all applicable safety standard, regulation or law and take appropriate safety measures for the system in which the Product is installed or used and shall take the second or third safety measures other than the Product. MELCO is not liable for damages that could have been prevented by compliance with any applicable safety standard, regulation or law.

(2) MELCO prohibits the use of Products with or in any application involving, and MELCO shall not be liable for a default, a liability for defect warranty, a quality assurance, negligence or other tort and a product liability in these applications.

1) power plants,
2) trains, railway systems, airplanes, airline operations, other transportation systems,
3) hospitals, medical care, dialysis and life support facilities or equipment,
4) amusement equipments,
5) incineration and fuel devices,
6) handling of nuclear or hazardous materials or chemicals,
7) mining and drilling,
8) and other applications where the level of risk to human life, health or property are elevated.

4 Product description

4.1 Provided diagnostics data

The WS0-GETH provides the following diagnostics data:

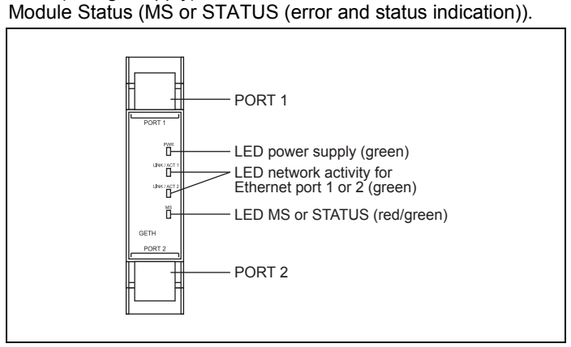
- input values (HIGH/LOW) for all MELSEC-WS extension modules and EFI devices connected
- output values (HIGH/LOW) for all MELSEC-WS input/output extension modules and EFI devices connected
- logic results
- the error and status information of all modules
- diagnostics (system CRCs, I/O errors)

For a detailed description of the format and mapping of the diagnostics data please read the operating manuals “Safety controller user's manual (detailed)”.

The occurrence of random or systematic faults within the module or in its control does not impede the MELSEC-WS system's safety function.

4.2 Display elements

The WS0-GETH is equipped with four LEDs:
PWR (voltage supply), LINK/ACT 1 and LINK/ACT 2 and Module Status (MS or STATUS (error and status indication)).



LED		Meaning
PWR	Off	No power supply
	Rights up Green	Power supply on
LINK/ ACT 1 LINK/ ACT 2	Off	No power supply , No Ethernet connection
	Rights up Green	Ethernet connection active, no data transmission
	Flashes Green	Ethernet connection active, data transmission
MS	Off	No power supply , Power-up state
	Rights up Green	Executing (live data to/from CPU)
	Flashes Green	Idle (CPU STOP)
	Flashes Red	1 Hz: Configuring/configuration required 2 Hz: Critical fault (gateway fault)
	Rights up Red	Critical fault (other system module fault)
	Flashes Red/Green	Executing, but Ethernet communication not established or faulty (When a closed connection is interrupted, the MS LED will be this state for ten seconds.)

4.3 Connections *Connexions*

The WS0-GETH provides an integrated Ethernet switch with two RJ45 ports for connection to the Ethernet network.
Le WS0-GETH est pourvu d'un commutateur Ethernet intégré avec deux ports RJ45 pour le raccordement au réseau Ethernet.

5 Mounting/Dismantling

ATTENTION

The MELSEC-WS system is only suitable for mounting in a control cabinet with at least IP 54 degree of protection.

While supply voltage is applied, gateways must not be plugged to nor be removed from the MELSEC-WS system.

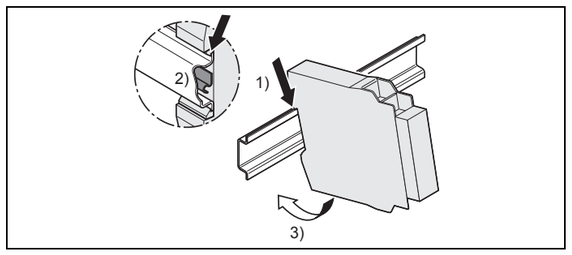
Le système MELSEC-WS ne peut être installé que dans une armoire de commande avec un degré de protection IP 54 ou mieux.

Les passerelles ne doivent pas être enfichées ou retirées du système MELSEC-WS quand la tension d'alimentation est appliquée.

To ensure full electromagnetic compatibility (EMC), the DIN mounting rail must be connected to functional earth (FE).
Pour garantir totalement la compatibilité électromagnétique (EMC), le rail de fixation DIN doit être raccordé à la terre fonctionnelle (FE).

5.1 Steps for mounting the modules

- Mounting in accordance with EN 50274
- The modules are located in a 22.5-mm wide modular system for 35 mm DIN rails to EN 60715.
- In a MELSEC-WS system the CPU module WS0-CPU0 or WS0-CPU1 is positioned at the extreme left, the two optional gateways follow directly. Only then do the expansion modules follow. The relays modules WS0-4RO have to be mounted at the extreme right.
- The connection between the modules is effected by means of the plug connection integrated in the housing.
- Ensure that suitable ESD protective measures are also taken during mounting. Otherwise the FLEXBUS+ bus may be damaged.

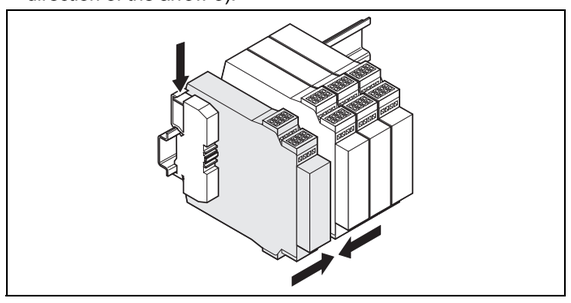


⇒ Make sure that the voltage supply of the MELSEC-WS system is switched off

⇒ Hang the device onto the DIN rail 1).

⇒ Ensure that the earthing spring contact 🖹) contacts the DIN rail such that it can electrically conduct.

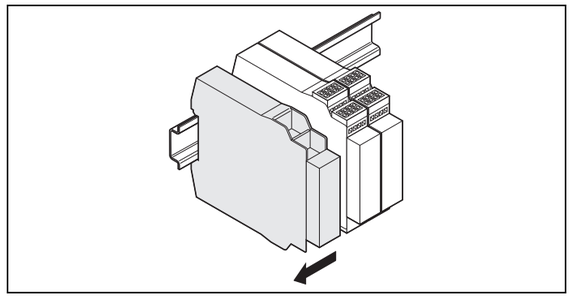
⇒ Latch the module onto the DIN rail by pressing it lightly in the direction of the arrow 3).



⇒ Slide the modules together individually in the direction of the arrow until the side plug connection latches in.

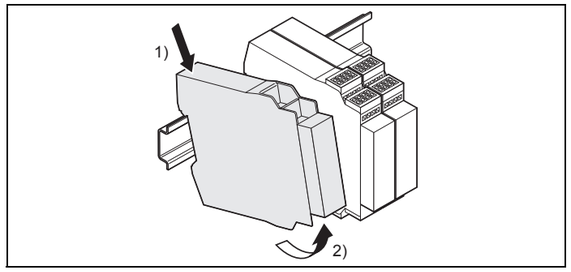
⇒ Install the end clips on the right and left.

5.2 Steps for dismantling the modules



⇒ Remove the plug-in package terminals with wiring and the end clips.

⇒ If there are several modules, slide the modules away from each other individually in the direction of the arrow until the side plug connection is separated.



⇒ Press the module downwards at the rear 1) and remove it from the DIN rail in the direction of the arrow while keeping it pressed down 2).

6 Electrical installation

ATTENTION

Do not commission without a check by specialist personnel!
Ne pas procéder à la mise en service sans qu'un personnel spécialisé ait effectué un contrôle !
Before the initial commissioning of the system in which you are using a MELSEC-WS system, it must be checked and released by qualified safety personnel. The results of this check must be documented.
La première mise en service d'un système utilisant un système MELSEC-WS ne doit être effectuée qu'après contrôle et sur autorisation délivrée par un personnel de sécurité qualifié. Les résultats de ce contrôle doivent être dûment documentés et suivis.

The WS0-GETH can be configured using the MELSEC-WS Setting and monitor tool via the Ethernet interface of the gateway or via the WS0-CPUx module's RS232 interface. A detailed description of the configuration can be found in the operating instructions for the MELSEC-WS Gateways.

7 In the event of faults

ATTENTION

In the event of unclear faults, cease operation!
En présence d'anomalie d'origine indéterminée, interrompez la marche !
Stop the machine if you cannot clearly identify or allocate the error and if you cannot safely rectify the malfunction.
Arrêter la machine si on ne parvient pas à identifier l'erreur, à en déterminer l'origine et à corriger l'anomalie de manière fiable.

Complete functional test after error rectification!
Menez à bien les essais de fonctionnement après correction des erreurs !
Carry out a full functional test after an error has been rectified.
Toujours effectuer des essais de fonctionnement complets après avoir corrigé une erreur.

8 Technical data

Supply circuits (via e.g. MELSEC-WS WS0-CPUx)

Supply voltage V_S	24 V DC (16.8 to 30 V DC)
Power consumption	Max. 2.4 W

Interfaces

Data Transmission Speed	10MBit/s (10Base-T) or 100MBit/s (100Base-TX), autosensing
Integrated switch	3-Port layer-2 managed switch with Auto-MDI-X for automatic detection of crossed Ethernet cable
Connection technology	2 × RJ45 ports
Address factory setting	IP address: 192.168.250.250 Subnet mask: 255.255.0.0 Default gateway: 0.0.0.0
Data interface	Backplane bus (FLEXBUS+)
Wire parameters	See Safety controller Ethernet interface module user's manual
Diagnostics data format	See Safety controller Ethernet interface module user's manual

General specification

Ambient operating temperature *Température ambiante de fonctionnement*	–25°C to +55°C *-25 à +55°C*
Storage temperature	–25°C to +70°C
Humidity	10 % to 95 %, non-condensing
Climatic conditions in accordance with	EN 61131-2 (55°C, 95% rel. humidity.) No corrosive gases
Vibration and Rigidity	Tested in accrordance with EN61131-2
Electromagnetic compatibility	IEC 61000-6-2, EN 55011 Class A
Weight (without packaging)	125 g

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Specifications subject to change without notice.

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